

RiskTopics

Crane operator certification, licensing, and qualification

Zurich Resilience Solutions - Risk Engineering

This RiskTopic provides a general overview of the aspects related to the evaluation of a candidate's knowledge, documentation, and ability to operate a crane used in construction.

Introduction

The three terms for crane operators – certification, licensing and qualification are each different. None of these designations should be used in place of another. In some states and cities, an operator must meet the requirements of all three.

Discussion

Certification

Crane operator certification has been available in the US since 1995. The US Department of Labor Occupational Safety and Health Administration (OSHA) published a standard that was effective in 2010 that required certification of construction crane operators. The original law provided for a four-year delay, until November 2014 before operator certification became mandatory. Prior to 2010, some states already required certification, and others have made certification a requirement ahead of the federal deadline. The original deadline was pushed back twice more, but as of November 8, 2018, all construction crane operators must be certified under the federal OSHA rules.

OSHA provides guidance regarding crane certifications in 1926 Subpart CC of the regulations. Operators might want to consider the following when creating their compliance programs. To be certified under the rules, there are two routes. One can test through an ANSI accredited third party such as the National Commission for Certification of Crane Operators (NCCCO), which was the original certification entity from over 25 years ago. The other ANSI accredited third party is the National Center for Construction Education and Research (NCCER). Another option is for an employer to establish their own accredited certification testing that meets stringent standards as outlined by OSHA in 1926 Subpart CC. One limitation of the latter is that the employer certification is not transferrable.

Certification is one step that shows that a crane operator has passed written knowledge and practical testing on a particular class of crane. It does not establish that a crane operator is qualified to operate a specific make, model, size, or configuration of crane.

Licensing

There are no federal licensing requirements for crane operators. As of this writing, sixteen states and seven cities require some form of licensing for crane operators. Requirements vary widely with some entities requiring written examinations, others requiring certification from an accredited entity, while all require payment of a fee for a single or multi-year license to operate a crane. None of the licenses are transferrable between states or cities that require licenses.

Most of the states that require licensing recognize NCCCO certification, and more than half require a Certified Crane Operator (CCO) as a prerequisite to licensing.

States that require crane operator licensing for construction cranes are California, Connecticut, Hawaii, Maryland, Massachusetts, Minnesota, Montana, Nevada, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, Utah, Washington, and West Virginia. In addition, the following cities require operator licensing: Chicago, Cincinnati, New Orleans, New York City, Omaha, Philadelphia, and Washington DC.¹

Qualification

All crane operators must be qualified as of February 7, 2019. Prior to the 2010 changes in the federal OSHA laws, qualification meant simply meeting the definition of a qualified person. Using the OSHA definition, a qualified person means a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project. (1926.1401)

Federal OSHA rules require that evaluation of crane operators include some form of evaluation of a crane operator's knowledge of a specific crane as configured, and practical testing to prove the operator's abilities. There are no official standards or protocols in use that determine a crane operator's ability. The evaluator must be qualified and should be an employee of the company. If an outside entity is used for qualification, the operator's employer remains responsible for any qualification determination.

One form of operator qualification could include written testing of an operator's knowledge of a particular machine. This may include:

- Crane assembly requirements
- Counterweight requirements
- Crane inspections and documentation
- Pre-lift considerations
- Required deductions from load chart capacities
- Load chart calculations to determine net hook capacity
- Wind effects and limitations
- Factors that reduce rated crane capacity
 - Side loading
 - Crane level
 - Duty cycle work
 - Outrigger position
 - Equipment condition
 - Dynamic loading
- Crane computer setup and operation (if equipped)
- Boom hoisting and lowering limitations (lattice booms)
- Special requirements for luffing jibs (if equipped)
- Capacities that vary with the quadrant of operation (mostly hydraulic cranes)
- Special requirements for boom attachments (pile driving leads, etc.)

- Power line clearance requirements
- Emergency procedures (power line contact, fire, snagged load lines)
- Outrigger blocking and ground loading
- Crane travel procedures
- End of shift crane parking
- Signaling and communication to the crane operator
- Limitations for use of personnel baskets
- Operator movement between the ground and crane cab

Written testing should be accompanied with practical testing to confirm that the candidate possesses the skills and knowledge to operate a particular machine.

There are training and testing companies throughout the US who provide generalized training for crane operators on specific classes of cranes. These may include lattice boom crawlers; lattice boom truck; telescopic boom rotating cab; telescopic boom nonrotating cab; articulated boom; boom truck; digger derricks; anchored tower cranes and self-erecting tower cranes, among others. This training, whether performed in-house or by a third party is valuable but is not a substitute for knowledge and practical testing on a particular model and capacity crane with unique attachments.

Practical testing is also an important consideration. An operator candidate should be able to demonstrate the skills to control the hook, follow hand signals, erect, and stow swing-away jibs (if equipped) and properly park a luffing jib at the end of a shift or preceding forecast high winds.

OSHA requires that crane operator qualification be documented, and that information must be available at the jobsite. The document must include the operator's name, name and signature of the qualifying person, date of qualification, and the machine(s) and configuration(s) for which the operator is qualified.

In addition to certification credentials, and qualification documentation, a key practice is for an operator to have a current medical card.

Conclusion

A key practice is to verify that all crane operators are fully qualified to operate a particular machine as configured. Certification is a part of, but not a substitute for operator qualification. Licensing alone is insufficient to qualify a person to be a crane operator.

Supplemental guides and reference material

Mobile Crane Manual – Construction Safety Association of Ontario

OSHA Standards – Parts 1910.180, 1926 Subpart CC

NCCCO.org

ASME P30.1 - Planning for load handling activities (American Society of Mechanical Engineers)

ASME B30.5 Mobile Cranes (American Society of Mechanical Engineers)

ASME B30.2 Tower Cranes (American Society of Mechanical Engineers)

References

¹“NCCCO State and City Licensing Requirements.” NCCCO, www.nccco.org/nccco/resources/industry-resources/state-licensing. Accessed 22 May 2023.

Other related Zurich RiskTopics

- Crane safety
- Cranes – critical picks
- Rigging – synthetic web slings
- Rigging – wire rope slings

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